

Notice of Allowability

Application No.

10/791,252

Examiner

John H. Le

Applicant(s)

TASHEV, IVAN

Art Unit

2863

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☐ This communication is responsive to ____.
2. ☒ The allowed claim(s) is/are 1-21.
3. ☒ The drawings filed on 01 March 2004 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: ____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date ____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date 03/01/04
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date ____.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other ____.

Examiner's Amendment

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Attorney Mark A. Watson on 06/20/2005.

The applicant has been amended as follows:

Claim 1, line 1, "A system" has been changed to --A method--.

Claim 2, line 1, "The system" has been changed to --The method--.

Claim 3, line 1, "The system" has been changed to --The method--.

Claim 4, line 1, "The system" has been changed to --The method--.

Claim 5, line 1, "The system" has been changed to --The method--.

Claim 6, line 1, "The system" has been changed to --The method--.

Claim 7, line 1, "The system" has been changed to --The method--.

Claim 8, line 1, "The system" has been changed to --The method--.

Claim 9, line 1, "The system" has been changed to --The method--.

Claim 10, line 1, "The system" has been changed to --The method--.

Reasons for Allowance

2. Claims 1-21 are allowed.
3. The following is an examiner's statement of reasons for allowance:

Regarding claim 1, none of the prior art of record teaches or suggests the combination of a method for automatically improving precision of initial localization estimates, comprising steps of: dividing a work volume into a predetermined number of overlapping regions; assigning each localization estimate to any corresponding one or more of the overlapping regions to form one or more clusters of localization estimates in one or more of the overlapping regions; estimating positions of objects represented by each cluster of localization estimates; determining whether any of the objects are duplicate objects by comparing the estimated object positions for clusters in overlapping regions; eliminating each duplicate object; and providing each remaining estimated object position to populate a set of position estimates, said set of position estimates representing a set of improved localization estimates relative to the initial set of localization estimates. It is these limitations as they are claimed in the combination with other limitations of claim, which have not been found, taught or suggested in the prior art of record, that make these claims allowable over the prior art.

Regarding claim 11, none of the prior art of record teaches or suggests the combination of a method for automatically generating a set of new position estimates from a set of initial position estimates, comprising using a computing device to: form one or more clusters of initial position estimates by assigning each initial position estimate in the set of initial position estimates to one or more corresponding overlapping regions covering a work volume being monitored by a receiving array; compute new position estimates from each cluster of initial position estimates; compare the new position estimates from each cluster to determine whether any of the position estimates

represent a position of a duplicate object; eliminate new position estimates representing duplicate objects by discarding each new position estimates having a lower computed weight than a corresponding duplicate position estimate. It is these limitations as they are claimed in the combination with other limitations of claim, which have not been found, taught or suggested in the prior art of record, that make these claims allowable over the prior art.

Regarding claim 17, none of the prior art of record teaches or suggests the combination of a computer-readable medium having computer executable instructions for automatically increasing a reliability and precision of initial localization estimates derived from a receiving array, said computer executable instructions comprising: dividing a work volume covered by the receiving array into a set of at least partially overlapping sections; assigning each initialization estimate to one or more of the overlapping sections to create one or more clusters of initial localization estimates within one or more of the overlapping sections; identifying any of the overlapping regions wherein clusters of the initial localization estimates represent potential objects; estimating positions of the potential objects in each overlapping region which includes a cluster representing a potential object; comparing each estimated position to determine whether any of the estimated positions represents a position of a duplicate potential object; eliminating estimated positions representing duplicate potential objects. It is these limitations as they are claimed in the combination with other limitations of claim, which have not been found, taught or suggested in the prior art of record, that make these claims allowable over the prior art.

U.S. Patent No. 5,555,512 discloses a foot position-estimating unit for estimating a foot position of a person in the human-area by utilizing the temperatures of the pixels extracted in the temperature-extracting unit. The foot position-estimating unit can be operated according to an algorismic method, a statistical processing such as a regression analysis or a neural network method. '512 fails to specify the steps of dividing a work volume into a predetermined number of overlapping regions; assigning each localization estimate to any corresponding one or more of the overlapping regions to form one or more clusters of localization estimates in one or more of the overlapping regions; estimating positions of objects represented by each cluster of localization estimates; determining whether any of the objects are duplicate objects by comparing the estimated object positions for clusters in overlapping regions; eliminating each duplicate object; and providing each remaining estimated object position to populate a set of position estimates, said set of position estimates representing a set of improved localization estimates relative to the initial set of localization estimates, as now recited in claim 1 of the present invention. '512 also fails to specify the steps of form one or more clusters of initial position estimates by assigning each initial position estimate in the set of initial position estimates to one or more corresponding overlapping regions covering a work volume being monitored by a receiving array; compute new position estimates from each cluster of initial position estimates; compare the new position estimates from each cluster to determine whether any of the position estimates represent a position of a duplicate object; eliminate new position estimates representing duplicate objects by discarding each new position estimates having a lower computed weight than a

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corresponding duplicate position estimate, as now recited in claim 11 of the present invention. '512 also fails to specify the steps of dividing a work volume covered by the receiving array into a set of at least partially overlapping sections; assigning each initialization estimate to one or more of the overlapping sections to create one or more clusters of initial localization estimates within one or more of the overlapping sections; identifying any of the overlapping regions wherein clusters of the initial localization estimates represent potential objects; estimating positions of the potential objects in each overlapping region which includes a cluster representing a potential object; comparing each estimated position to determine whether any of the estimated positions represents a position of a duplicate potential object; eliminating estimated positions representing duplicate potential objects, as now recited in claim 17 of the present invention.

U.S. Patent No. 6,249,252 discloses a method for providing a location estimate of a wireless mobile station. '252 fails to specify the steps of dividing a work volume into a predetermined number of overlapping regions; assigning each localization estimate to any corresponding one or more of the overlapping regions to form one or more clusters of localization estimates in one or more of the overlapping regions; estimating positions of objects represented by each cluster of localization estimates; determining whether any of the objects are duplicate objects by comparing the estimated object positions for clusters in overlapping regions; eliminating each duplicate object; and providing each remaining estimated object position to populate a set of position estimates, said set of position estimates representing a set of improved localization estimates relative to the

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initial set of localization estimates, as now recited in claim 1 of the present invention.

'252 also fails to specify the steps of forming one or more clusters of initial position estimates by assigning each initial position estimate in the set of initial position estimates to one or more corresponding overlapping regions covering a work volume being monitored by a receiving array; compute new position estimates from each cluster of initial position estimates; compare the new position estimates from each cluster to determine whether any of the position estimates represent a position of a duplicate object; eliminate new position estimates representing duplicate objects by discarding each new position estimates having a lower computed weight than a corresponding duplicate position estimate, as now recited in claim 11 of the present invention. '252 also fails to specify the steps of dividing a work volume covered by the receiving array into a set of at least partially overlapping sections; assigning each initialization estimate to one or more of the overlapping sections to create one or more clusters of initial localization estimates within one or more of the overlapping sections; identifying any of the overlapping regions wherein clusters of the initial localization estimates represent potential objects; estimating positions of the potential objects in each overlapping region which includes a cluster representing a potential object; comparing each estimated position to determine whether any of the estimated positions represents a position of a duplicate potential object; eliminating estimated positions representing duplicate potential objects, as now recited in claim 17 of the present invention.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably

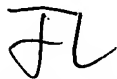
accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Contact Information

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John H Le whose telephone number is 571-272-2275. The examiner can normally be reached on 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E Barlow can be reached on 571-272-2269. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



John H. Le

Patent Examiner-Group 2863

June 20, 2005



MICHAEL NGHIEM
PRIMARY EXAMINER